

# Cancer Registry Review

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Bureau of Public Health Statistics  
Arizona Cancer Registry

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## ACR ANNOUNCEMENTS

### UPDATED RULES GOVERN CANCER REPORTING

The rules governing cancer reporting in Arizona have been changed. The final version was issued on 1/20/06, and the link "Arizona Administrative Code Title 9, Chapter 4" on the Arizona Cancer Registry home page (<http://www.azdhs.gov/phs/phstats/acr/index.htm>) has been updated to take browsers to the set of rules.

Some of the changes reflect the near-universal adoption of computer technology in registry work. For example, hospitals with 50 or more licensed inpatient beds will now be required to report electronically. Previously, the electronic reporting requirement applied only to those facilities with at least 150 beds.

Follow-up requirements have been altered to reflect guidelines provided by the CoC for approved cancer programs. Previously, annual follow-up reports had to be submitted for 90% of the *total number* of cases that were reported. This has been updated to ease the burden on reporting facilities. Under the new rule, hospitals are required to send follow-up information to the ACR for:

- a.) 80% of the total number of analytic patients, and
- b.) 90% of analytic patients diagnosed within the past 5 years, or from the hospital's reference date if the registry is less than five years old.

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# ACR ANNOUNCEMENTS

## New Members of the ACR Team



### Gilbert Garcia

#### Programs/Project Specialist II

Gilbert Garcia is an Arizona native. He enjoys watching and playing sports, especially basketball and football, camping, biking, and movies. He is the eldest of four children, and is engaged to be married in November of this year. Gilbert worked for the Vital Records office for nearly three years before coming to the Arizona Cancer Registry. He is up to the challenge of learning all about the registry and is pleased to be part of the ACR team.



### Zayin Javier

#### Programs/Project Specialist I

Zayin Javier was born in the Philippines and has lived in Arizona for almost ten years. He has professional experience in several areas of state and federal government, including vital records and collecting data for Medicare and financial aid programs. Zayin's interests include drawing, reading, camping, cooking, video games and movies. His current favorite is "The Shawshank Redemption."



### Veronica Vensor

#### Data Section Manager

Veronica Vensor was born and raised in the Valley, and completed her undergraduate and graduate work at the University of Arizona. While at the U of A, Veronica interned for the Substance Abuse and Mental Health Services Administration and the Centers for Disease Control and Prevention. Veronica has been working for the ADHS since 2003 as an epidemiologist for a variety of chronic disease programs, including diabetes, cardiovascular disease, arthritis, obesity prevention, and cancer. Outside of work, Veronica is a busy mom. Her daughter Jasmine is 16 months old, walking, and constantly keeping her on her toes. Veronica is very happy to be in her new position at the ACR and looks forward to working with everyone.

## ACR Staff phone numbers and emails

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Visit our web page at <http://www.azdhs.gov/phs/phstats/acr/index.htm>

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## OTHER NEWS

### Cancer research pioneer Charles Smart dies at 79

(Source: *Deseret News*, January 29, 2006)

Charles Smart, a prominent Salt Lake physician and pioneer in computerizing cancer research and early detection, died Saturday, Jan. 28, 2006, at age 79.

Dr. Smart was born in 1926 in Ogden. He served in the Army in World War II and then served a two-year LDS mission in the Northwestern States.

While in medical school at Temple University School of Medicine in Philadelphia he married Dorothea Sharp in 1952.

During his medical career, Dr. Smart served as a physician at University of California Los Angeles, University of Utah and as chief of surgery at LDS Hospital for 10 years.

He founded the Utah Cancer Registry, a central cancer registry that has served the state of Utah for more than 35 years, and was president of the Utah Chapter of the American Cancer Society.

Dr. Smart was well-known for his work in establishing computerized cancer research throughout the country and for establishing early detection guidelines for the disease with the National Cancer Institute and the American College of Surgeons.

As head of the Early Detection Branch of the National Cancer Institute, Dr. Smart used his experience in oncology and computer programming to aid the International Executive Service Corps.

Through the IESC, he assisted organizations in Ecuador and Hungary in updating cancer pre-

vention and treatment programs. In Ecuador, he enabled a hospital in Guayaquil to create a registry system like the one he had developed in the United States allowing doctors access to data on cancer treatment.

Dr. Smart was president of the Utah Chapter of the American College of Surgeons, a branch chief at the National Cancer Institute and chairman of the Cancer Society Breast Cancer Task Force.

He received the 1996 David Rockefeller Spirit of Service Award and was among the seven nominated for the Frank Pace Award, the highest prize of the International Executive Service Corps.

“He saved lives and was a great doctor to thousands of people but saved more untold lives through his programs in mammography and computer research to help save people through early detection,” said son Tom Smart, a photographer at the Deseret Morning News.

After retirement in 1999, Dr. Smart and his wife served an 18-month LDS mission in Moscow, Russia.

### **ACR Holidays**

The ACR office observes the following holiday:

**Memorial Day Monday, 5/29/06**

Please do not fax confidential information on this day.

# REGISTRAR EDUCATION

## New Online Cancer Registry Management Courses

A structured, online program in Cancer Registry Management is available through the American Health Information Management Association (AHIMA) and has received official NCRA approval. Those who complete a Formal Education Program such as this and 160 hours of work experience in a CTR-staffed registry are eligible to take the CTR exam via Eligibility Route 2.

The program is comprised of four prerequisites and six specialization courses. Credit will be given for any prerequisites that have already been completed elsewhere with a final grade of "C" or better. Enrollment is ongoing; you are eligible to access the courses when AHIMA receives your payment and verifies completion of required prerequisites. The program is organized into groups of courses called "clusters." The clusters are self-paced, but each course must be completed within 15 weeks. Anatomy and Physiology is the only class offered outside of a grouping.

The fee for each cluster is \$550. Financial aid is not offered through AHIMA, but tuition may be covered by employer tuition reimbursement programs. For more details, log onto <http://campus.ahima.org>.

## Introductory Abstracting Workshop

The ACR will sponsor a workshop for beginning registrars from April 17th to the 20th at the ASU Downtown Center. There will be no charge for tuition and materials. A broadcast email containing additional details was sent the week of March 20th. Please RSVP by contacting Kara Locketti at [locketk@azdhs.gov](mailto:locketk@azdhs.gov) or (602) 542-7592. This workshop will not be eligible for

NCRA continuing education credits.

## CTR Exam 2006 Dates

Eligible registrars will be able to take the CTR exam during the remaining period during 2006:

**Testing Begins:** September 16, 2006

**Testing Ends:** September 30, 2006

**Application Deadline:** July 31, 2006

The exam fee is \$225 (US) for NCRA members and \$325 US for non-members.

You can find additional information on the exam at <http://www.ctrexam.org>.

The ACR would like to extend congratulations to AZ registrars who successfully completed the CTR exam:

**Kathleen White- Banner Good Samaritan Medical Center**





### **Coding systemic treatment for concurrent multiple primaries: October ACR teleconference**

The ACR hosted a teleconference in late October to address issues surrounding coding systemic therapy (i.e., chemotherapy, hormone therapy, and biological response modifiers) administered for multiple primaries being treated at the same time. April Fritz, of the National Cancer Institute's (NCI) SEER program, and Louanne Currence, Education Coordinator for the Missouri Cancer Registry and featured speaker at the fall 2005 CRAAZ meeting, moderated the session. Participants will be awarded 1 CE credit from the NCRA.

The central question addressed was whether registrars should code systemic therapies to all active primaries, even if the documentation states that a specific treatment is being given for one cancer. The rationale behind this was that therapy administered via the bloodstream has the potential to impact more than one type of tissue.

The answer was that abstractors should code the treatment to the other primary(ies) only if it is effective against the disease(s). Registrars can use resources such as SEER\*Rx and the NCI's web site, [www.cancer.gov](http://www.cancer.gov), to research whether a specific agent is currently being used for the malignancy in question. These are valuable tools because physicians are not always available to answer questions.

The second major issue raised was whether systemic therapies used for non-malignant pre-existing conditions, such as rheumatoid arthritis, should be considered cancer-directed treatment if the patient is later diagnosed with a malignancy and is still taking the drug. The consensus was that these drugs should not be coded in the abstract, partly because the doses used to treat cancer would be different from those used to treat other diseases.

The ACR is currently in the process of developing a training module based on the teleconfer-

ence. This will be in the form of a Power Point slide presentation that can be viewed on the ACR web site. This module will include an overview of systemic therapies, an introduction to using SEER\*Rx and NCI's treatment summaries as resources, and case examples. The ACR will seek NCRA CE credit for those who view the presentation and complete an evaluation form.

These guidelines will be effective for cases diagnosed on or after 1/1/2005 (ignore treatment dates). Hospital registries will need to identify those cases with multiple primaries that are diagnosed and/or treated (first course) concurrently.

Updates to treatment fields are considered critical changes and will need to be reported to the ACR.

### **Importance of Critical Changes**

Timely submission of critical change forms will ensure that your facility and the ACR are "on the same page." Sending information on changes helps with accuracy and timeliness, and that's the name of the game.

Critical Data Change Sheets are available on the ACR's web page, <http://www.azdhs.gov/phs/phstats/acr/index.htm>. Follow the "Registrar Resources" link on the left side of the page. Since it is an Adobe Acrobat document, you will need to print the page and hand-write the updates. Alternatively, you can print the updated abstract and highlight the changes. Changes to the following fields are considered critical:

- Name
- Site
- Stage (effective for 2004 cases: this critical data change will be "Collaborative Stage")
- Histology
- Treatments (first course only)
- Physician number
- Accession number
- Sequence number

If you have a large number of critical changes, it is suggested that you split them up rather than sending all of them at the same time that you submit data.

# CODING CORNER

## **Common Data Errors** **Brenda Smith, BGS, CTR**

As part of participation in the CDC/NPCR (National Program of Cancer Registries) 2006 Call for Data, the ACR runs a protocol of reports aimed at data clean up. These reports include EDITS, Inter-record edit checks (checking patient demographic information for multiple primaries), and duplicates (person's case reported twice).

It appears, based on errors, that many hospital registries are not performing EDITS on the data before submitting it to the ACR. At present, the ACR requests that EDITS be run and errors corrected before submission. If you do not perform edit checks as you abstract new cases, performing edits is included as part of your State Backup instructions.

ACR's future plan is to develop a state-specific edit program that all reporting facilities will be required to run before submitting data. If your data are processed at the ACR and errors are found, your submission will be returned to you for corrections and resubmission. This process could have adverse effects on facilities' timeliness and completeness of reporting. Please take the time to read your coding manuals and perform edit checks on both new and updated cases.

If you are going to code a field, even if it is not required by the ACR, please make sure that you code it correctly because what is recorded may affect another field. Please review the section "Relationships Among Items" on pages 28-28H of the FORDS manual.

The most frequently seen errors on the EDITS cleanup for the 2006 Call For Data are described below.

**Comorbidities and Complications:** Please do not use a decimal point when coding. If you are using a 4-digit code, trail it with a zero.

Also, not all V-codes are allowed. Refer to the list in FORDS, page 69.) Do not record the following V-codes:

V01-V07.1  
V07.4 - V09.91

V16 -V21.9  
V23.2 - V25.3  
V25.5 - V43.89  
V46 - V50.4  
V50.8 - V83.89

**Treatment Fields:** If there is no reference to a treatment (surgery, radiation, chemotherapy etc.) in the patient's chart, please code as if no treatment was performed and enter zeros in those treatment fields. Using nines is not the preferred coding practice (especially in an analytic case).

### ***Example: Q&A # 15324 ACoS Inquiry And Response System (I & R)***

Q. Do patients not receiving chemotherapy have a code assigned 00, 82, 85-88 or 99 to explain why? Would they use 00000000 as the date and 00000000000 as the FIN, class 01? Does each case have the same information for patients not receiving hormones, radiation, immunotherapy, other treatment and transplants? What is the minimum number of therapies the CoC wish reported?

A. Yes. These chemotherapy codes indicate the reason why chemotherapy was given/not given. The date systemic therapy started field would be coded 00. The chemotherapy at this facility field would be coded 00...."

According to FORDS, code 00000000 when no surgical procedure was performed (FORDS page 131), no radiation therapy administered (FORDS page 148), no systemic treatment administered (FORDS page 169), i.e., no chemotherapy (FORDS page 170B), no hormone treatment (FORDS page 174B), no BRM (FORDS, page 178), no immunotherapy (FORDS, page 178B), and/or no Other treatment (FORDS, page 184).

Also, please remember the following:

### ***Example: Q&A # 16459 ACoS I & R***

Q. Standard 3.3 says 90% of cases must be abstracted within 6 months of first contact. How will it be accurate if some patients don't complete or begin all their treatment by that time? Do we mark these cases 888888 and is it acceptable to have inaccurate or missing information for the cases?

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# CODING CORNER

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A. If you have information about referral for additional treatment such as chemotherapy or radiation, you can use the 88 or 88888888 to indicate that the treatment was planned but not yet administered. You will need to update the abstract with the treatment information when this is available. ”

**Radiation Therapy Fields:** When the patient does have radiation treatment, please make sure that you code all of the corresponding codes correctly. Code both the summary code and date in the first course of treatment screen and the radiation-specific items:

i.e.: Rad Rx - Volume  
Rad - Regional Rx Modality  
Rad - Regional Dose cGy  
Rad - Boost Rx Modality  
Rad - Boost Dose cGy  
Rad - No of Treatment Vol  
Rx Summ - Surg/Rad Seq  
Rx Date - Radiation Ended  
Reason for No Radiation

Even though only the items Date Radiation Started, Rx Summ - Radiation, Rx Hosp - Radiation, Regional Treatment Modality and Radiation/Surgery Sequence are required by the ACR to be collected, the EDITS program will flag conflicting fields as errors. For instance, if there are codes for Rx Summ - Radiation and Date Radiation Started, but the other fields are left blank, this will constitute an error because of the conflicting information.

**Other Treatment:** The field “Other Treatment” field would be most commonly used for hematopoietic diseases. Treatments such as transfusions, phlebotomy (commonly used to manage polycythemia vera), and aspirin do not “modify, control, remove, or destroy proliferating cancer tissue.” Coding these treatments as therapy does not apply for leukemia or multiple myeloma. (See “Abstracting and Coding Guide for the Hematopoietic Diseases, Appendix I, page 48.)

**Example: Q&A #16655 ACoS I&R**

Q. Are blood transfusions considered treatment for multiple myeloma?

A. Revised 12/8/05: No. Transfusions are not documented as treatment.

**Example: Q&A #11970 ACoS I&R**

Q. For polycythemia vera treatment, how is the phlebotomy coded?

A. Code as (1) other treatment.

“Other Treatment” also applies to alternative and experimental therapies. For instance, gene therapy would be considered “other” treatment due to its experimental nature. Also, a drug given as part of a clinical trial to define its mechanism of action would be coded as “Other Treatment” instead of chemotherapy or immunotherapy. The following example was taken from ACoS I & R:

**Example: Q&A #10355 ACoS I&R**

Q. For a glioblastoma multiforme case where the patient had recurrences with multiple resections and is being treated with "experimental epidural growth factor inhibitor," is it coded as a BRM or other therapy?

A. Currently, code as an investigational drug (other therapy 2). It will probably turn out to be a chemotherapy agent, but it is currently only I Phase III trials. April Fritz, CTR.

**Example: Q&A #20021040 SEER**

Q. Other Cancer-Directed Therapy: What code is used to represent treatment with "Epithilone" or "Epothilone"?

Code the Other Cancer-Directed Therapy field to [Other experimental cancer-directed therapy (not included elsewhere)], until the exact mechanism of action is determined for this drug. This drug is in phase I clinical trials. It has a similar action Taxol, but derived from a different source.

**Abstract Narrative:** If a patient has more than one reportable diagnosis, or a history of a reportable diagnosis, enter information in the text field “Other Primary Tumors” and sequence accordingly. A patient with a history of another primary, i.e. prostate, means your primary, i.e. bladder, would be

(Continued on next page)

# CODING CORNER

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sequence 2.

**Regional Nodes:** Must be coded 00 (all nodes examined were negative) or 98 (no regional nodes examined) for in - situ cases.

**Collaborative Staging:** Please remember to code all 15 CS Factors and to read each sections' notes before coding.

Example: Site-Specific Factors 4 and 5 for Breast Cancer - If CS Lymph Nodes is not coded 00, i.e., if there are clinically or pathologically positive nodes, you must code 888 for Site-Specific Factor 4 or 5. These fields apply only to nodes pathologically negative by routine stains.

**CNS/Brain:** Remember that starting with reporting year 2004, these sites are coded for laterality (*The Brain Book Abstracting and Coding Guide for Primary Central Nervous System Tumors, and FORDS, table pg. 12*).

## Prostate Cancer Collaborative Staging Fields

Do not record the Prostatic Acid Phosphatase (PAP) test results in Site Specific Factor 4. PAP is no longer a standard test.

SSF4 has been redefined to record prostatic apex involvement. This information was formerly picked up in the fields CS Extension-Clinical Extension (codes 31-34) and SSF 3, CS Extension-Pathologic Extension (codes 031, 033, and 034).

Even though the change was published in 2005, it is retroactively effective to cases diagnosed 1/1/2004 and after.

## Class of Case Clarification

If a malignancy is clinically diagnosed in a physician's office and histologically confirmed at your facility, and the patient receives all first course treatment elsewhere, this is reportable as a class of case 0.

This scenario was not addressed in the Class of Case guide in the Fall 2005 issue.

Below are two ACoS I & R's that address slightly different aspects of the same issue:

# / Date	Question	Answer
13569 12/2/2004	If a staff physician clinically diagnoses a patient in their office and they come to our facility for an incisional biopsy for histologic confirmation, what is the class of case?	Class 0, unless you also treated the patient in which case it would be class 1.
17592 2/9/2006	If a patient was diagnosed elsewhere with sq cell ca of lt neck mass (unknown primary) and had a diagnostic incisional bx at our facility and dxed with primary laryngeal ca, what is the class of case for us and the other facility if they received radiation treatment at a third facility?	With the information you have provided, this would be a class of case 0 for the first facility and your facility. This would be a class 2 case for the third facility.





## Casefinding Codes

Codes used to identify possible cases for inclusion in the registry have been updated slightly. SEER will update the list on their web site ([http://training.seer.cancer.gov/module\\_casefinding/icd\\_9\\_and\\_10\\_casefinding.html](http://training.seer.cancer.gov/module_casefinding/icd_9_and_10_casefinding.html)).

Code V58.1 Encounter for chemotherapy, has been deleted and replaced by subcategory V58.1 Encounter for antineoplastic chemotherapy and immunotherapy, and expanded to include two new codes:

V58.11 Encounter for antineoplastic chemotherapy  
V58.12 Encounter for immunotherapy for neoplastic condition

This code expansion provides the ability to differentiate between encounters for patients receiving immunotherapy vs. chemotherapy.

**Source:** *Advance for Health Information Professionals*, 10/10/2005

## Updates to ACR Manual

The ACR will be issuing updates to its manual in the near future. NAACCR version 11 standards will be included in these updates. These updates will include new supplemental pages, labels, and instructions.

NAACCR version 11 is effective for cases diagnosed 1/1/2006 and after. Updates pertinent for reporting facilities include:

### Newly Required Fields

Casefinding Source  
Address at DX- - Supplemental  
Text - Primary Site Title  
Text - Histology Title  
Rx Summ- - Systemic/Sur Seq  
Follow-up Source Central

### Changes in Coding Requirements for Existing Fields

#### Type of Reporting Source

##### New codes added

2- Radiation Treatment Centers or Medical Oncology Centers (hospital-affiliated or independent)  
8- Other hospital outpatient units/surgery centers

### Definition changed

Code 1 expanded to include managed care plans w/ comprehensive, unified medical records

### Assignment rules changed

Hierarchy changed from 1, 4, 5, 3 to 1, 2, 8, 4, 3, 5, 6, 7

### **Primary Payer at Dx**

The following codes have been changed for compatibility with Centers for Medicare and Medicaid Services (CMS) usage:

Old Code	Old Label	New Label	New Code
20	Managed Care, HMO, PPO	Private Insurance: Managed Care, HMO, or PPO	20 (Same as old code) or 21 (Private Insurance Fee-for-Service)
36	Medicaid with Medicare supplement	Medicare with Medicaid eligibility	64
50	Medicare	Medicare/ Medicare, NOS	60
51	Medicare with supplement	Medicare with supplement, NOS	61, 62, 63
52	Medicare with Medicaid supplement	Medicare with Medicaid eligibility	64
53	TRICARE	TRICARE	65
54	Military	Military	66
55	Veteran's Affairs	Veteran's Affairs	67
56	Indian/ Public Health Service	Indian/ Public Health Service	68

# DATA SECTION

## Your Data Hard at Work!

### Thyroid Cancer in Arizona: 2002

**Chris Newton, MPA**

Thyroid cancer is often a highly curable malignancy that accounts for about 2% of all cancers nationally. The American Cancer Society estimates that 25,690 cases of thyroid cancer will be diagnosed in 2005. The 5-year survival rate for thyroid cancer is 96.6%.

The thyroid is a gland in the neck that takes iodine from food and turns it into the hormones thyroxine (T-4) and triiodothyronine (T-3). These hormones maintain the rate at which the body uses fats and carbohydrates, help control body temperature, influence heart rate and regulate the protein production. The Thyroid is mostly composed of two types of cells, follicle cells (that produce T-3 and T-4) and 2) C cells (parafollicular cells). The two most common histologies in thyroid cancer are papillary cell (75-85%) and follicular cell (10-20%). These cancers begin in the follicle cells of the thyroid. Medullary cell cancers, which begin in the C cells, make up 5% of thyroid cancers. Other rare cancer histologies of the thyroid (< 5%) include anaplastic cells and lymphomas.

There are few known risk factors for thyroid cancer. However, a diet low in iodine and exposure to radiation appear to increase the risk. The number of thyroid cancer cases is increasing by about 2 percent a year. Three out of every four thyroid cancer cases diagnosed are in females. It is also more likely to be diagnosed in younger adults (age 20 to 60 years) with a median age of 46 years, compared to the median age of diagnosis of all cancers at 67 years. For cases diagnosed in 2002, the age adjusted incidence rate of thyroid cancer is highest in females of Southeast Asian or Pacific Island ancestry (12.2/100,000) compared to females of all races (11.9/100,000).

For the 2002 Arizona Cancer Registry (ACR) database, 461 new thyroid cancer cases were recorded in Arizona residents. Most cases were females (73% See Table1), White (93% See Table 2), and Non-Hispanic (86% See Table 3). Two thirds of all cases were SEER Summary Staged local (See Table 4). The median age was 48 years., slightly higher than the national average of 46 years. The age adjusted incidence rate for Arizona females was 12.6/ 100,000

women. The yearly change in the female thyroid cancer incidence rate during the years 1999 through 2002 was reviewed. Between the years 2000 and 2001 it increased significantly (38%) then decreased to level not significantly different from the national level in 2002. The cancer rate in males has also increased between 1999 (3.76/100,000) and 2002 (4.89/100,000). However, the rate is not significantly different from the national rate. Although the thyroid cancer rate in Arizona is higher than the national rate in 2002, for both males and females, it is not statistically significant (See Graph 1).

**Table 1**  
**Sex of Thyroid Cancer Cases Diagnosed in Arizona in 2002**

Sex	Count	Pct
Male	126	27.3
Female	335	72.7
Total	461	100

**Table 2**  
**Race of Thyroid Cancer Cases Diagnosed in Arizona in 2002**

Race	Count	Pct
White	427	92.6
Black	12	2.6
Native American	10	2.2
Asian & Pacific Islander	6	1.3
Unknown	6	1.3
Total	461	100

**Table 3**  
**Ethnicity of Thyroid Cancer Cases Diagnosed in Arizona in 2002**

Ethnicity	Count	Pct
Non-Hispanic	396	85.9
Mexican	6	1.3
All Other Spanish	59	12.8
Total	461	100

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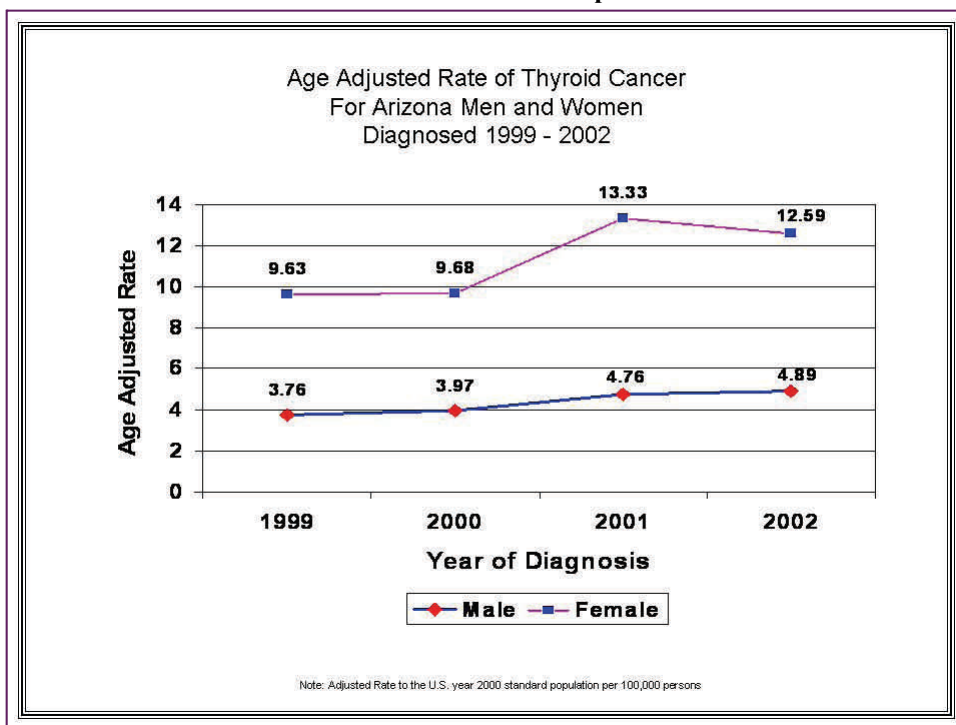
# DATA SECTION

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Summary Stage 2000	Count	Pct
Local	306	66.4
Regional	108	23.4
Distant	19	4.1
Unknown	28	6.1
Total	461	100

Table 4  
Summary Stage of Thyroid Cancer Cases Diagnosed in  
Arizona in 2002

Graph 1



1 Cancer Facts & Figures – 2005, American Cancer Society (ACS), Atlanta, Georgia, 2005.

2 Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, Mariotto A, Feuer EJ, Edwards BK (eds). *SEER Cancer Statistics Review, 1975-2002*, National Cancer Institute. Bethesda, MD, [http://seer.cancer.gov/csr/1975\\_2002/](http://seer.cancer.gov/csr/1975_2002/), based on November 2004 SEER data submission, posted to the SEER web site 2005.

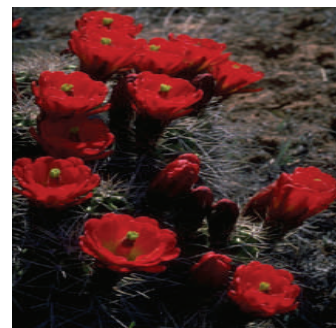
3 Kumar V, Abbas AK, Fausto N (eds). *Pathologic Basis of Disease*, 7<sup>th</sup> Edition, 2005, Philadelphia, Pennsylvania: Elsevier Saunders. Chapter 24, The Endocrine System, Maitra AB, Abbas AK, p. 1177.

4 Mayo Clinic.Com, Thyroid Cancer, [www.mayoclinic.com/health/thyroid-cancer](http://www.mayoclinic.com/health/thyroid-cancer), 2006.

5 IBID. Cancer Facts & Figures -2005.

6 Miller BA, Kolonel LN, Bernstein L, Young, Jr. JL, Swanson GM, West D, Key CR, Liff JM, Glover CS, Alexander GA, et al. (eds). *Racial/Ethnic Patterns of Cancer in the United States 1988-1992*, National Cancer Institute. NIH Pub. No. 96-4104. Bethesda, MD, 1996.

7 Arizona Cancer Registry Data, March 1, 2006.



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**We're on the  
web!  
[www.azdhs.gov](http://www.azdhs.gov)**

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## Cancer Registry Review

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